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COTTON IN COLOMBIA



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FOREWORD

In the past 15 years Colombia has greatly expanded cotton output. In 1970-71 only 12 countries exceeded its level of production. During this period, Colombia has shifted from a net importer of cotton to a sizable exporter, ranking among the top 20 countries in the world. At the same time, Colombia's cotton textile industry has been rapidly expanding.

This study is one of a series of reports on agricultural developments in countries that are important competitors of the U.S. raw cotton industry. It is intended to inform U.S. cotton interests of developments that affect prospective exports of U.S. cotton.

The author takes this opportunity to express his appreciation to the people who contributed information for this study, including Colombian Government officials and Colombian farm, industry, and trade leaders. He also wishes to thank the Agricultural Attaché and his staff and other U.S. Government officials in Washington, Bogota, and Medellin for their contributions.

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COTTON IN COLOMBIA

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Summary and conclusions

During the past 15 years, Colombia has moved from a net raw cotton importer of some 50,000 bales or more per year to a net exporter of close to 300,000 bales in the peak season 1968-69. A number of factors contributed to the spectacular expansion of cotton production that made this change in the trade balance possible. At the same time, mill consumption in what is perhaps Latin America's most efficient cotton textile industry expanded from about 172,000 bales in 1956-57 to about 350,000 bales in 1970-71.

An important factor was the work of the Cotton Development Institute (IFA) whose staff of cotton research and extension specialists also had a role in extending credit, and in operating gins. Other important factors in the expansion of cotton production were shifts in national monetary and agricultural policy and associated programs which made it more difficult to import cotton and encouraged production. Currency reform in 1957 made it advantageous for Colombian mills to pay prices for domestic cotton high enough to make cotton production attractive to producers. Strong leadership from IFA, in cooperation with the textile industry and the Government, helped develop programs under which farmers who were willing to raise cotton were able to rapidly expand production.

Colombia has a number of distinct cotton producing areas which are combined into two zones based on their typical planting and harvest periods. The Coastal-Meta Zone typically plants cotton in July and August and harvests in December and January, while the Interior Zone plants in February and March and harvests in July and August.

Prior to 1954, the Interior Zone was considerably smaller than the traditional Coastal cotton producing zone. However, from 1954 through 1962 the Interior Zone led in cotton acreage. In 1962 acreage in the Interior totaled 269,000 acres, compared with 56,000 acres in 1952. Since 1962, acreage has fluctuated from a low of 84,000 acres in 1965-66 to a high of 191,000 acres in 1969-70. It is estimated that 140,000 acres were devoted to cotton in 1971-72.

In the Coastal area, acreage has trended more regularly upward, reaching a peak of 485,000 acres in crop year 1969-70. This compares with 189,000 in 1962-63 and 76,000 acres in 1952-53. In 1970-71 the Coastal area had 391,000 acres of cotton and a small increase is in prospect for 1971-72. These variations between zones are explained in part by the fact that in the Coastal Zone most of the production is in the hands of fairly large commercial cotton farmers who find few, if any, practical alternatives to cotton production whereas in the Interior Zone, farms are smaller, and alternatives are more plentiful.

For the whole country, acreage of cotton on an August-year basis ranged from 369,000 acres in 1960-61 to a high of 697,000 acres in 1969-70, following which it dropped to 557,000 acres in 1970-71, and indications are that acreage will total 588,000 in 1971-72. National production followed a more or less similar pattern rising from 306,000 bales in 1960-61 to a peak of 651,000 bales in 1968-69 and dropping to 538,000 in 1970-71.

Costs of inputs used in growing cotton continue to rise but farmers who can obtain good yields still find production worthwhile. This was especially true during 1966-67 through 1968-69 when yields were unusually high.

Internal prices are fixed by the Government. Normally producers and mill representatives attempt to agree on a schedule of prices for the various qualities which can be recommended to the Government. The fixed prices apply to the quantity of cotton the mills take from the particular producing zone in a season. All cotton not allocated to the mills is authorized for export. Each of the four producers' organizations decides whether to sell exportable cotton to or through cotton export companies or to export the cotton directly. All cotton, as well as other export products, is eligible to receive a subsidy in the form of a tax credit certificate in an amount in pesos equal to 15 percent of the foreign exchange surrendered.

Table 1.—Supply and distribution of cotton in Colombia, 1960-70

Year ¹	Stocks ¹	Production	Imports	Consumption	Destroyed	Exports
	<i>1,000 bales²</i>	<i>1,000 bales²</i>	<i>1,000 bales²</i>	<i>1,000 bales²</i>	<i>1,000 bales²</i>	<i>1,000 bales²</i>
1960	97	307	3	222	--	119
1961	66	360	3	240	--	143
1962	46	375	2	260	--	115
1963	48	335	22	260	--	54
1964	91	300	9	290	3	52
1965	55	300	65	300	3	42
1966	75	400	5	310	--	83
1967	87	465	3	310	--	154
1968	95	640	5	310	--	295
1969	135	590	4	325	9	223
1970	125	540	5	350	10	175

¹ Beginning Aug. 1.² 480 pounds net.

Unfavorable weather, causing heavy insect damage and reduced yields, hurt 1970-71 production in the Cordoba, Bolivar, and Meta Departments of the Coastal area but good weather prevailed in the other producing areas including Cesar which is the major producing Department. On an overall basis, yields improved in 1970-71, but they were still below farmers' expectations. Farmers probably were encouraged by the gains in yields, even though they were modest.

Market conditions are such that the two producing zones may respond differently from one another during the next year or so. This arises out of the fact that domestic cotton prices are well below world prices. With conditions as they are today, the domestic mill industry can be expected to take all of the Interior crop except the longer staple Acala cotton produced in the Cauca Valley. Thus, farmers in Tolima and adjacent areas in the Upper Magdalena Valley will take the internal cotton prices into account in deciding whether to make any adjustments in their cotton acreage. This contrasts with the situation in the Coastal-Meta zone where a sizable part of the crop is sold at world prices and in the Cauca Valley where practically all of the crop is sold at world prices.

While some upward adjustment of domestic prices from season to season may be assumed, it is difficult to anticipate whether they will be adjudged "favorable" and thus encourage expanded acreage or "unfavorable" and thus encourage a contraction of acreage.

If conditions on world markets and in Colombia remain as they are, it is likely that raw cotton production, mill consumption, and exports of raw cotton all will expand in the year ahead. Consumption is likely to establish a new record high. Most of the increases in acreage and production therefore, are expected to occur in the Coastal area and possibly the Cauca Valley, but if domestic prices come fully into line with foreign prices, acreage could also expand in the Tolima area.

Colombia has an abundance of potentially good cotton land that, to date, has not been planted to the crop. Although the published cost of production data for Colombia suggests that costs have been near selling prices, there is considerable reason to think that most commercial farmers in well suited areas actually produce cotton at a lower cost and enjoy a sizable spread between cost and selling price. If higher cotton prices do not result in increased acreage, it is probably because many cotton farmers especially in the Interior Zone have more attractive alternative opportunities.

Thus, Colombia is one of the countries in which Government policy is favorable and in which land resources and know-how exist to materially expand cotton production if market conditions appear sufficiently favorable to merit the commitment of productive resources to expanded cotton production.

The Raw Cotton Industry

Colombia's role as a cotton producer dates back to precolonial times but production was never very large. Prior to establishing the cotton textile industry in Colombia, before World War I, all cotton was exported. The textile industry, however outran cotton production in the late 1920's and Colombia became a net importer. This condition

continued until the end of the 1950's when cotton production expanded to the point where Colombia again became a net exporter.

The cotton found by early Spanish explorers in the Santander-Boyaca area was the Lengupa-type annual cotton. This type and a perennial type that was grown along the Northern Coast through at least much of the 19th century continued to be produced commercially until the early 1960's.

Geography

Colombia is in the northwestern corner of South America and is the only country on that continent with a coastline extending along both the Caribbean Sea and the Pacific Ocean. Its land borders five countries—Panama, Venezuela, Brazil, Peru, and Ecuador.

Colombia is roughly the size of the 10 Southeastern States. It is also about the same size as the combined six European countries comprising the Common Market (Belgium, Luxembourg, the Netherlands, France, Italy, and West Germany).

Colombia is a country of contrasts. From an economic standpoint, only the western half of the nation has made any significant development; the eastern half—the plains and the Amazon jungle—is very sparsely inhabited and practically unused. Of the western half, part is hot, humid rain forest, other parts are near-desert, and a still greater area has a temperate climate with enough rainfall for a wide variety of crops. Topography is of controlling importance in the west. Three great mountain ranges fan out above the Ecuadoran border and cover much of the western zone; the principal valleys tend to be quite narrow.

The fertile lands in the valley floors and the Caribbean coastal plains are held in fairly large tracts, and the rural population density is quite low compared to that of the steeper land on the mountainsides, where small owners and squatters have their little “fincas”.

Production Areas

There are a number of distinct cotton producing areas in Colombia but for convenience they are all placed into one of two groups based on planting and harvesting dates. The Coastal-Meta Zone typically plants cotton in July and August and harvests in December and January while the Interior Zone plants in February and March and harvests in July and August. The Coastal-Meta Zone includes in order of decreasing acreage: the Departments of Cesar, Cordoba, Magdalena, Guajira, Sucre, Meta, Atlantico and Bolivar. The Interior Zone consists primarily of Tolima and Valle del Cauca Departments with adjacent areas along the Upper Magdalena River in Cundinamarca, Caldas and Huila Departments.

Scale of Operation and Tenure

The acreage in cotton per farm varies greatly from one part of Colombia to another. For the latest crop year for which data are available, 1969-70, the area in cotton per farm for the country as a whole averages 63.8 acres. In the Interior Zone the average is 27.2 acres; in Meta, 19.8 acres; and in the Coastal area, 170.7 acres.

Using 49 acres of cotton and less as an arbitrary indication of small farms it is evident from data in Tables 2 and 3 that all areas have a substantial number of farms in this size grouping. Small farms are most common in the Department of Meta where they account for 95 percent of all cotton farms and 56 percent of the cotton acreage. This compares with 82 percent of all farms and 32 percent of the total acreage in the Interior Zone and 44 percent of all farms but only 8 percent of the acreage in the Coastal area. For Colombia as a whole 72 percent of the farms have 49 acres of cotton or less and as a group they account for 16 percent of all cotton acreage in Colombia.

Using a measure of 124 acres and larger as an indication of large farms, the Coastal area had 31 percent of its farmers in this size group and they accounted for 75 percent of the total area in cotton in that area. In the Interior Zone 6 percent of the farmers were large farmers and they had 42 percent of the Interior cotton acreage. Large farmers comprised only 2 percent of the cotton farmers in Meta but for the country as a whole they accounted for 14 percent of all cotton producers and 64 percent of all cotton acreage.

By tenure, owners and renters are rather equally divided in number and by size of farm, except in Meta where owners predominate. (See table 2 and 3)

The data reveal little relationship between area in cotton and yield of cotton so far as the whole of Colombia is concerned. However, in both the Interior and Coastal areas the larger farms tend to have the higher average yields.

Table 2.—Number of cotton producers, by tenure, classified by area of cotton per farm and producing zone in Colombia, 1967

Cotton area per farm	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta	Coastal-Meta	
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
TOTAL COTTON PRODUCERS					
Under 12	1,573	340	980	1,320	2,893
12 to 49	974	623	120	743	1,717
49 to 124	378	491	32	523	901
124 to 247	130	390	18	408	538
247 to 494	46	197	2	199	245
More than 494	15	83	0	83	98
Total	3,116	¹ 2,178	1,152	¹ 3,330	¹ 6,446
OWNERS					
Under 12	699	166	790	956	1,655
12 to 49	419	266	92	358	777
49 to 124	173	218	27	245	418
124 to 247	58	164	14	178	236
247 to 494	21	111	2	113	134
More than 494	7	57	0	57	64
Total	1,377	982	925	1,907	3,284
RENTERS					
Under 12	874	174	190	364	1,238
12 to 49	555	357	28	385	940
49 to 124	205	273	5	278	483
124 to 247	72	226	4	230	302
247 to 494	25	86	0	86	111
More than 494	8	26	0	26	34
Total	1,739	1,142	227	1,369	3,108

¹ Includes 54 farms in Bolivar Department for which tenure and size are not reported. These 54 farms have a total of 7,838 acres of cotton which produced 4.8 million pounds of seed cotton or an average of 613 pounds of seed cotton per acre.

Table 3.—Area, production, and yield of seed cotton, by area of cotton per farm and producing zone in Colombia, 1967

Cotton area per farm	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta	Coastal-Meta	
Total area in cotton:	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
Under 12	10,050	2,696	5,132	7,828	17,878
12 to 49	26,751	19,699	3,215	22,914	49,665
49 to 124	31,389	44,997	2,609	47,606	78,995
124 to 247	22,738	75,986	3,373	79,359	102,097
247 to 494	14,033	73,080	593	73,673	87,706
More than 494	11,589	75,516	0	75,516	87,105
Total	116,550	¹ 299,811	14,922	¹ 314,734	¹ 431,283
Production of seed cotton:	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>
Under 12	16,984	3,120	4,112	7,231	24,215
12 to 49	43,719	21,687	2,589	24,277	67,996
49 to 124	54,138	55,197	2,053	57,249	111,387
124 to 247	40,383	95,733	2,752	98,486	138,870
247 to 494	27,749	90,543	454	90,995	118,744
More than 494	24,299	94,410	0	94,410	118,707
Total	207,272	¹ 365,487	11,960	¹ 377,447	¹ 584,719
Yield per acre:	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Under 12	1,690	1,157	797	923	1,354
12 to 49	1,634	1,101	806	1,059	1,370
49 to 124	1,725	1,227	787	1,203	1,410
124 to 247	1,776	1,260	815	1,241	1,361
247 to 494	1,977	1,239	764	1,235	1,353
More than 494	2,097	1,250	--	1,250	1,362
Total	1,778	1,219	801	1,199	¹ 1,356

¹ Includes 54 farms in Bolivar Department for which area in cotton per farm is not reported. In the aggregate, these 54 farms had 7,838 acres of cotton and produced 4.8 million pounds of seed cotton or an average yield of 613 pounds of seed cotton per acre.

Trends in Number of Farms, Acreage, Production and Yield

The number of cotton producers peaked in 1962, then declined several years until 1966, when it again turned upward (Table 4). In 1969 the number was near the 1962 peak level. Most of the fluctuation occurred in the Interior Zone and in Meta. This fluctuation tends to parallel the annual variations in acreage of cotton. The most volatile area within the Interior Zone appears to be the southern Tolima area where the number of farmers raising cotton dropped from 5,735 in 1962-63 to 1,415 in 1965-66 then increased to 6,152 in 1969-70 and then dropped to 3,007 in 1970-71. Despite these wide fluctuations, area of cotton per farm fluctuated between 20.9 and 33.4 acres and in 6 of the 9 years the range was between 26.6 and 33.4 acres. The lowest average acreage occurred when the number of farms was greatest and the highest average when the number of farms was relatively small, suggesting that the "ins" and "outs" tended to be smaller than the typical cotton farm.

The Interior Zone was the dominant factor in the sharp upsurge in cotton acreage in the late 1950's and early 1960's. Area in cotton in the Interior and for the country as a whole peaked in 1962-63, following which both declined. The decline was much sharper in the Interior Zone than for the whole country because the country totals included the Coastal area which continued to expand. The Coastal area regained first position in acreage in 1963-64, and in 1970-71 out of a total national area of about 557,000 acres, the Coastal area accounted for about 391,000, the Interior for about 153,000, and the Meta area for the small remainder.

Table 4.—Number of farmers raising cotton, by producing zone in Colombia, 1960-69

Year ¹	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta	Coastal-Meta	
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
1960	5,725	--	--	--	--
1961	5,869	1,638	2,034	3,672	9,541
1962	7,497	1,632	1,827	3,459	10,956
1963	3,075	1,807	2,500	4,307	7,382
1964	2,507	1,911	1,520	3,431	5,938
1965	2,037	2,350	2,019	4,369	6,406
1966	2,338	2,178	1,152	3,330	5,668
1967	3,116	1,899	681	2,580	5,696
1968	5,519	2,278	951	3,229	8,748
1969	7,026	2,839	1,061	3,900	10,926
1970	3,670	--	--	--	--

¹ Year beginning Aug. 1.

Table 5.—Area of cotton by producing zone in Colombia, 1960-70

Year ¹	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta ²	Coastal-Meta	
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
1960	225,908	138,747	3,909	142,656	368,564
1961	233,779	165,092	3,904	168,996	402,775
1962	268,580	188,646	7,040	195,686	464,266
1963	155,334	227,043	22,427	249,470	404,804
1964	121,289	223,603	24,038	247,641	368,930
1965	84,088	288,472	22,108	310,580	394,668
1966	96,829	299,811	14,922	314,733	411,562
1967	116,549	295,764	12,496	308,260	424,809
1968	183,170	372,661	19,573	392,234	575,404
1969	191,070	484,976	20,986	505,962	697,032
1970	152,967	391,243	13,188	404,431	557,398

¹ Year beginning Aug. 1.

² Includes some acreage in Santander and Norte de Santander.

In the 1971-72 crop year acreage declined slightly in the Interior Zone but the Coastal area is regaining some of the acreage taken out of cotton in 1970-71.

Production also has been subject to wide swings, especially in the Interior Zone. It first peaked at about 235,000 bales in 1962-63, then declined to 73,000 bales in 1965-66. This was followed by another upsurge to about 246,000 bales in 1968-69. This contrasts sharply with the persistent climb in production in the Coastal area from about 104,000 bales in 1960-61 to about 403,000 bales in 1969-70 with each year during this period representing a new record high.

For Colombia as a whole, cotton production fluctuated within a range of about 306,000 to 385,000 bales between 1960-61 and 1965-66 with little net change over the 6-year period. In the next 3 years production rose to about 651,000 bales, followed by 2 years of decline.

Table 6.—Average area of cotton per farm, by producing zone in Colombia, 1960-70

Year ¹	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta ²	Coastal-Meta	
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
1960	39.5	--	--	--	--
1961	39.8	100.8	2.0	46.0	42.3
1962	35.8	115.6	4.0	56.6	42.3
1963	50.4	125.5	8.9	57.8	54.9
1964	48.4	117.1	15.8	72.2	62.0
1965	41.3	122.8	10.9	71.2	61.5
1966	41.5	137.6	12.8	94.4	72.6
1967	37.3	155.7	18.3	119.6	74.6
1968	33.1	163.6	20.5	121.6	65.7
1969	27.2	170.7	19.8	129.7	63.8
1970	41.7	--	--	--	--

¹ Year beginning Aug. 1. ² Includes some production in Santander and Norte de Santander.

Table 7.—Production of lint cotton by producing zone in Colombia, 1960-70

Year ¹	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta ²	Coastal-Meta	
	<i>1,000 bales³</i>	<i>1,000 bales³</i>	<i>1,000 bales³</i>	<i>1,000 bales³</i>	<i>1,000 bales³</i>
1960	200	104	2	106	306
1961	221	131	2	133	354
1962	235	147	3	150	385
1963	149	184	17	201	350
1964	108	195	14	209	317
1965	73	228	14	242	315
1966	118	285	10	295	413
1967	159	305	10	315	474
1968	246	392	13	405	651
1969	183	403	14	417	600
1970	184	344	10	354	538

¹ Year beginning Aug. 1. ² Includes some production in Santander and Norte de Santander. ³ Bales of 480 pounds net.

Several factors contribute to higher average yields in the Interior Zone. Soils appear to be inherently more fertile, a higher percentage of the total cotton area is irrigated, and farm practices are more intensive in the Interior Zone than in the Coastal-Meta Zone. Furthermore, the Coastal area is more prone to annual and seasonal variations in rainfall, thus susceptible to both droughts and periods of excessive moisture. In fact, it is not unusual for a farmer to experience some reduction in yields as a result of both too little and too much rainfall within the same growing season.

Table number 7 shows the spectacular increase in production between 1965-66 and the peak production year 1968-69. Between 1965-66 and 1966-67 acreage gains were moderate in both the Coastal area and the Interior Zone as well as for the whole of Colombia. Yields were at record levels in both major areas, however, and production peaked to record levels in both the Coastal area and the country as a whole. The successes of 1966-67 were repeated in 1967-68, and again in 1968-69. The high yields that contributed to this production pattern appear to reflect good weather, as well as continuing increases in the use of fertilizer, and improvements in other production practices.

Table 8.—Yield of lint, by producing zone in Colombia, 1960-70

Year ¹	Zone				Total
	Interior	Coastal-Meta			
		Coastal	Meta ²	Coastal-Meta	
	<i>Pounds per acre</i>	<i>Pounds per acre</i>	<i>Pounds per acre</i>	<i>Pounds per acre</i>	<i>Pounds per acre</i>
1960	426	360	271	358	399
1961	455	381	197	377	422
1962	420	366	228	368	398
1963	460	353	368	386	415
1964	425	387	291	406	412
1965	418	357	298	374	383
1966	586	441	316	450	482
1967	654	479	392	492	536
1968	646	489	314	495	543
1969	460	385	313	395	413
1970	578	422	388	421	464

¹ Year beginning Aug. 1.² Includes some acreage and production in Santander and Norte de Santander.

Although the general level of cotton prices was favorable for cotton production, increases in prices appear to have played a much smaller role than yields in the upsurge of production. Prices (in terms of pesos) were increased rather sharply for the 1965-66 season and then were raised moderately in the middle of the 1967-68 season but remained unchanged for the next 2 crop years. Details of these and subsequent price changes are found in tables 10 and 11.

Competitive Crop Relationships

The competitive relationship between cotton and other lines of agricultural production is quite different in the Interior cotton Zone from that in the Coastal area. Prior to the upsurge of cotton acreage in the late 1950's and early 1960's much of the land in the Interior Zone had been devoted to pasture.

In the late 1950's the Government began to exert considerable pressure on large land owners to use rich soil areas more intensively than for cattle grazing. To minimize the risk of having much of their land taken over by the Government as part of Colombia's agrarian reform program, some owners introduced cotton on a portion of their former pasture land. In most cases, however, the land owner rented some of his pasture to a would-be cotton farmer for an agreed amount of cash for the number of months the land would be needed to plant and harvest a crop of cotton.

The growth in the importance of cotton in Tolima, Valle del Cauca, and adjacent areas of the Interior Cotton Zone, therefore, was an integral part of the general economic development of these areas and much of the well suited cotton land has stayed in crop production even though it may not now be cotton that is grown.

In the Cauca Valley cotton is in direct competition with sugarcane, corn, grain sorghum, and black beans. Where nearby mill capacity is available sugarcane tends to hold the stronger appeal, unless sugar prices are unusually low or cotton prices unusually high. This is true even though it is economically feasible to follow cotton with soybeans as a second crop. In Tolima, especially the southern part, rice is the major cash crop competitive with cotton and changes in relative earnings from the two crops can cause fluctuations in cotton acreage. Cotton also competes to some extent with soybeans, sesame, corn, black beans and grain sorghum which in the past 18 months has become important.

In the Coastal Cotton Area, cotton's most direct competition is from cattle and on the richer and well drained cotton soils it tends to be a "no contest" game in favor of cotton unless farmers find themselves unable to obtain reasonable yields. However, cotton does not hold such a strong edge that acreage will double or triple in the next few years. While good profits are made from cotton, and much land is available that is well suited for production,

many land owners simply do not want to engage in a line of production that requires as much capital and labor as does cotton. They would rather follow the traditional pattern of cattle farming with its lower cash operating requirements, lower risk, and less exacting labor and management demands even though the returns per acre are much lower than those from cotton.

Cost of production

Costs range widely in Colombia within areas as well as between areas. Profits too have ranged widely. In the early years after the currency reform in 1957 and with associated inducements to encourage the expansion of cotton production, many businessmen in Bogota and other cities responded to the profit lure, rented land formerly used mainly for pasture, bought farming equipment, and became cotton farmers.

Acreage in the Interior Zone increased from just over 100,000 acres to more than 250,000 acres in a period of 6 years. The fact that acreage in the Interior later fell just as rapidly suggests that the cost-price-profit relationship within the cotton enterprise and between cotton and other lines of production shifted and also that some farmers did not find cotton quite as attractive a money maker as they had hoped. However, cotton continued to be attractive for farmers in the Coastal Area where acreage expansion continued through 1969-70.

Why these differences? Since much of the expansion in the Interior was by city businessmen who rented land, there was nothing to stop them from leaving when they wanted to. They had other sources of income so they could either refrain from renewing their annual lease and sell their machinery or rent the land for some other crop.

In these respects the Interior differs from the growth cotton areas in the Coastal Zone, especially the area in the present Department of Cesar. Here cotton has much less competition from other lines of production. Some cotton farmers in the Coastal area are full-time farmers who for lack of ready alternatives are largely dependent upon cotton for their livelihood. Others are cattle producers who devote some of their best suited soils to cotton and thus have two independent but important sources of income.

As a general rule, the cost of producing cotton is lower where yields are higher, and yet Colombian cotton production has shown more continued strength in the Coastal Zone where yields average considerably below those of the Interior Zone. This appears to be related to differences in the structure of agriculture and the availability or lack of alternative lines of production.

In the Coastal area there is a greater dependence upon farming than on nonfarm activities and a greater dependence upon cotton as a source of farm income, than on other crops. Further, differences in sizes of farms and production practices for cotton in the major producing zones account for lower production costs and higher profit margins in the Coastal area than in the Interior Zone.

Although there are differences between zones, the only detailed information published on cost of production is that prepared by the National Federation of Cotton Growers for the country as a whole. Based largely upon these data and assuming a lint yield of 491 pounds per acre but allowing for some adjustments, total costs for the 1970-71 season averaged about \$150 per acre. Broken down, direct costs were about \$121 (\$90 preharvest and \$31 harvest and ginning) and \$29 represented fixed costs.

It is difficult to assess costs as reported by the Producers Federation. In general, each item of cost could involve some or all farmers but the average costs for some components may be overstated.

After allowing for the value of the seed, the adjusted total cost would be about 23.2 cents per pound and the adjusted direct cost would be about 17.3 cents per pound. With this type of cost structure and an assumed price of about 24.8 cents per pound, the profit over and above adjusted total costs would be about \$7 per acre and the spread over and above adjusted direct cost would be about \$37 per acre.

Within each producing zone the indications are that the cotton producers who obtain above average yields are likely to have lower unit costs and a higher net operating margin than the average for the industry. By the same token, farmers with yields that are considerably below the average for their respective areas frequently find themselves falling short of covering total costs and at times may not even cover direct costs.

Land charges vary widely from one part of Colombia to another. According to the National Federation of Cotton Producers' report on cost of production the land charge is calculated at 1.5 percent of the value of the land per month for the 7 months the land is used, or an average of about \$16 per acre for the country as a whole. By

areas, the highest land charge—about \$38 per acre—is found in the Cauca Valley. This is followed by about \$26 in Tolima. The Coastal area ranges from about \$13 to \$21.

With the higher prices prevailing in world markets in 1971-72 cotton farmers who can be considered fairly low cost producers will be encouraged to rely more heavily upon cotton in the coming year if they have or can easily obtain the additional suitable land, machinery, and labor that would be required. Improved world prices also may prove to be encouraging to less efficient farmers if the better price outlook and possibly more favorable weather promise them more profits.

Farm practices

Advisory Services: Much of the progress Colombian cotton producers have been able to make is attributable to service rendered by technically trained professional agricultural workers. The Cotton Development Institute (IFA) worked alone in this area for some years after it was established as a semi-Government organization in 1948. It was made responsible for cotton research, extension and other activities.

In the early years IFA granted credit only to those cotton farmers who agreed to accept technical advice from Colombian Agricultural Institute (ICA). Starting in the 1960's private firms of technical advisors were established to work with cotton farmers and it has become normal practice for lending agencies financing cotton farmers to require a written contract with a recognized advisory service as a condition for financing cotton production. Larger farmers may meet this qualification by employing an acceptable technical person or technical staff. All such advisors must be licensed by ICA and none can contract to provide technical supervision to more than about 2,500 acres of cotton.

In general the medium and larger size cotton farmers have been quick to adopt many of the more advanced production practices that have proved successful elsewhere, especially in the United States, and to adapt them to Colombia's tropical conditions. Although considerable hand labor is used, especially for weed control, most other preharvest operations except insect control are done by tractor. Many farmers spray with tractor machinery while cotton is small, but virtually all commercial farmers rely entirely upon aerial spraying firms who use fixed wing aircraft to apply insecticides to larger cotton.

The more progressive commercial farmers in each producing zone are now using both fertilizer and preemergence herbicides on an increasing proportion of their crops. However, fertilizer and herbicide use is somewhat more common in the Interior than in the Coastal area. It has been estimated that 30 percent of the cotton acreage was fertilized in 1968.

According to cost data published in 1970 by the National Federation of Cotton Producers the 10 percent of the cotton acreage on which the most fertilizer is used received about 134 pounds of urea, 45 pounds of superphosphate and 45 pounds of chlorate of potash per acre. The remaining 90 percent of the cotton acreage receiving fertilizer received 89 pounds of urea per acre. In addition to this urea, 20 percent of the acreage fertilized received 45 pounds of superphosphate, and 10 percent received 45 pounds of chlorate of potash, leaving 60 percent with only the urea.

It was recently announced by the ICA based on multiple fertilizer trials held in the cotton producing areas that the application of compound fertilizers to cotton in general does not represent any economic benefit since only nitrogen at the rate of 45 to 67 pounds per acre is needed.

Colombian cotton farmers now are using a number of preemergence herbicides. In 1969-70 four patterns of application were used. These are listed in order of decreasing cost of materials per unit of land: Trifluralin, a mixture of Fluometuron and Alachlor, Nitralin, and a mixture of Diuron and Alachlor.

Irrigation and drainage.—Most of the cotton acreage in the Cauca Valley is irrigated. Sprinkler systems predominate. Such irrigation permits earlier planting than if rain is relied upon and the highest yields in the area are obtained from early planted, irrigated cotton. In Tolima and surrounding areas rainfall is heavier than in the Cauca Valley but here, too, there is a small amount of supplemental irrigation. A few farmers apply supplemental irrigation in the Coastal area in dry years.

In Meta, rainfall averages are higher than in most other areas and too much moisture tends to be a frequent problem. For this reason, Meta cotton production is not expected to undergo any major and permanent expansion in the foreseeable future. Flooding is a major problem in the Sinu Valley (Cordoba). In part, this might be corrected by onfarm drainage which is badly neglected, but lack of major drainage outlets might cause better farm runoff on some farms to increase the flooding on other farms in years of generally high water.

Varieties.—ICA controls planting seed. U.S. varieties have been found to perform well in Colombia and planting seed of the varieties that perform best are imported from the United States. They are maintained and multiplied under ICA supervision. According to the latest information, Deltapine 16 accounts for 42 percent of the cotton acreage in Colombia. This is followed in importance by Deltapine Smoothleaf, 38 percent; Acala 1517 BR-2, 8 percent; and Stoneville 213, 8 percent. The remaining 4 percent is Deltapine 45 and Coker 201. Heretofore, all of the Acala 1517 BR-2 is grown in the Valle del Cauca where it is the only variety grown but in the Coastal crop being planted in late 1971 and in Tolima (Central Zone) in the spring of 1972 some long-staple cotton is being tried. Other departments may grow any of the medium staple varieties listed above. About 70 percent of the entire crop is reported to be 1-1/16 inches in staple length. In some recent years when yields have been disappointing, farmers have been critical of the quality of the planting seed, contending that more high quality seed should be imported.

Insects and diseases.—Insects are a major problem in Colombia, as elsewhere in the tropics, and Colombian cotton is subject to attack from a wide range of insects from the period of seed germination until the destruction of the stalks after harvest. It is doubtful if the kind of growth the Colombian cotton industry has experienced could have taken place before some of the newer families of insecticides came into use less than a generation ago. Today, however, such insecticides do exist and Colombian farmers are using them to gain what they hope will be effective control of the injurious cotton insects found in their fields. Although most injurious insects can be found in Colombia, they do not all present problems each year or in all areas. It is reported that the most important pests from an economic point of view are *Heliothis* Spp. and *Anthonomus grandis*—the bollworm and boll weevil. The boll weevil does not appear in the Interior Zone.

In recent years Colombia has been able to reduce the typical number of spray applications. Anthony and Bravo, in an article¹ that appeared in 1970, reported that whereas a few years ago crops were sprayed 18 to 20 times, they are now given only 9 to 10 applications, presumably without any decline in effective control.

The cost data released by the National Federation of Cotton Producers in 1970 list the following insecticides as being used by Colombian cotton producers. They are listed in order of decreasing materials cost per unit of cotton area: Sevin, Toxaphene DDT 40-20, Endrin, Thiodan, Methyl Parathion, EPN, Malathion U.L.V., Calcium Arsenate, and Ekatin.

Colombia is fortunate in that it encounters no serious cotton disease problems. Verticillium wilt does not affect cotton and Fusarium wilt is not important at present. Boll rots can cause some loss of yield in the Coastal Area and the Cauca Valley, so farmers have to take this danger into account in deciding how early to plant if they wish to lessen the danger of heavy rains as cotton approaches maturity. The Coastal Area encounters bacterial blight in the form of angular leaf spot but this presents no significant problem for cotton production.

Government policy and role of specialized institutions

The Government of Colombia is keenly aware of the importance of cotton to the economy of the nation. This is reflected in the Government's statement at the 1970 Plenary Meeting of the International Cotton Advisory Committee, which noted: "During the past few years, cotton has developed the most rapidly of all agricultural products in Colombia. Due to increases in cultivated area and in productivity, it has been possible to almost completely eliminate imports of cotton fiber used by national textile mills. Increased cotton production has also contributed to the expansion of edible oils and animal feed concentrate industries and has created surpluses of raw cotton, textiles, and cottonseed meal for export purposes."

Because of the importance of cotton, Government policy has aimed to help the industry expand along efficient lines. Governmental and private institutions have played important roles in cotton production. For some years the major institution was the Cotton Development Institute (IFA), which was established in 1948 as a semi-Governmental organization. It was established with the support of the Colombian textile industry and was financed partly by the Ministry of Agriculture and partly through payments by producers and the textile industry. In addition to being responsible for cotton research and extension, IFA made surveys of potential cotton producing areas, ginned

¹ K. R. M. Anthony and R. Bravo, "Cotton Production in Colombia", *Cotton Growing Review*, London, April 1970.

and classed the crop, exercised control over planting seed, provided credit to purchase farm supplies and developed a comprehensive statistical service for cotton.

In 1960, the business activities were transferred to the National Federation of Cotton Growers. The Federation also has absorbed the statistical function formerly performed by IFA and is the source of much of the data used in this report. In 1968, IFA's remaining functions were delegated elsewhere and IFA went out of business as an organization. The research and technical functions were absorbed by two entities of the Ministry of Agriculture: (1) research, extension, and seed management became the responsibility of the Colombian Livestock and Agriculture Institute (ICA) and (2) ginning became the responsibility of the Agricultural Marketing Institute (IDEMA).

ICA has a number of research centers that are engaged, at least in part, in cotton development. In addition to the main station at Palmira in Valle del Cauca, there are stations at Buga (also in Valle del Cauca) Espinal in Tolima; Montería in Córdoba; Fundación in Magdalena; and Villavicencio in Meta.

There now are four important producer organizations—the National Federation of Cotton Growers (FEDERREALGODON), the Corporation of Coastal Cotton Growers (CORAL), the Association of Cotton Growers of Cesar (ASOCESAR), and one known as COALCESAR. These organizations represent their members in negotiating with the national raw cotton distributive agency known as DIAGONAL, which also is the organization representing the textile industry, and in negotiations with the Government on prices and domestic mill requirements for raw cotton. The producer organizations also represent their members in selling for export that portion of their production that is not needed by domestic mills. They may either export directly or sell to the cotton trade which, in turn, will find markets abroad for the cotton.

Another key cotton organization is the Arbitration Agency. Membership in this agency consists of agents from the four producer organizations and representatives of DIAGONAL and foreign buyers. This agency acts as an arbitration board between buyers and sellers and settles all disputes.

Government credit policy has played an active role in the expansion of cotton production in Colombia. In 1959, banks were required to direct 15 percent of their loans to agriculture. Since the major agricultural reorganization in 1969, the Agricultural Development Bank, Caja Agraria (CA) is the most important source of credit to farmers, but private banks also make loans to cotton producers. The Government arranges for credit to be made available to the producer associations for exporting cotton by discounting loans on cotton held in warehouses. The Government also subsidizes exports of cotton and other products.

Colombian credit policy encourages exports of cotton and most alternative crops. Except in cases where the farmer may be heavily in debt, farmers can easily borrow money to cover the out-of-pocket costs of raising cotton or other crops. Also, the cotton farmer can obtain help from the Government in obtaining seasonal labor, but such assistance is not usually needed nor is it generally available for meeting the lower seasonal labor peaks for other field crops.

From Farm To Market

Harvesting

For all practical purposes, all of the cotton produced in Colombia is hand picked. There have been years when farmers found it difficult to employ a sufficient number of pickers to harvest the crop as fast as they would like but in most years there have been enough to handle the task satisfactorily. Difficulty, if any, is most likely to be experienced in the Department of Cesar where as a result of sparse population and a heavy dependence of the economy on cotton, there is a shortage of local laborers at picking time. It is therefore necessary to move workers long distances and the cooperative action of Government and the cotton industry has been required. The reliance upon hand pickers is in keeping with the Government policy goal of guaranteeing rural employment through training programs for farm workers. Cotton Grower's Associations have cooperated with this policy and the Colombian Government has reported effective recruiting and training programs for cotton laborers.

In the main centers of cotton production where the labor demand is highest, interest is developing in the possible use of mechanical cotton pickers. Some pickers were demonstrated during the 1970-71 crop year. Should their use prove feasible from a technical standpoint and economically justified a major impediment to continued expansion of cotton production might be overcome.

Handpickers average about 220 pounds of seed cotton a day and some pick close to 400 pounds a day. Picking rates vary, but it is believed that they average about \$1 per 100 pounds for the first picking and that a weighted average rate for the entire season would be about \$1.25 per 100 pounds.

When the unginned cotton is received at the gin it is weighed and its grade and moisture level determined. If the moisture exceeds 11 percent the gin refuses to accept the cotton. The unginned cotton is classified as falling into the white, colored or dirty categories and it is emptied into bins with other cotton of the same description.

On the basis of average lint outturn, the net weight of the seed cotton is subdivided into lint, cottonseed, and trash, and the gross value of the load determined. From the approximated gross value deductions are made for ginning. This charge grossed about \$6.28 per bale in 1969-70. In 1970-71 it was raised to about \$7.06. Of these charges IDEMA, the ginning agency received \$5.65 and \$6.43 respectively to cover the entire ginning operation including provision for new gins that might be needed in the future. The remaining 63 cents is allocated to a Development Fund and for administration. Included in this are support of the Cotton Federation and ICA's seed development program. In case the farmer intends to plant cotton the following year, he is obliged to accept a deduction of \$8.91 per bale as a deposit to insure that he will destroy the stalks and a deduction of \$4.71 per bale toward a fund which is used to finance imports of insecticides for the following year. He receives credit for this deposit when he obtains his insecticides the following season. If he decides not to produce cotton the following season he is eligible for an immediate refund of his deposit.

Farmers receive a substantial advance against the value of their cotton at the time it is delivered to the gin. Final settlement takes place after the cotton has been ginned and its quality has been determined. The final settlement takes account of the weight of lint and seed, quality, prices of both lint and seed, advances of inputs during the growing season, the assessments to the various funds that are collected by IDEMA, the advanced payment to the farmer upon delivery of the seed cotton to the gin, and the required deposits to insure the destruction of the stalks and to finance insecticide purchase.

Gins: For many years the cotton gins in Colombia have been publicly owned—first by IFA and more recently by IDEMA, The Agricultural Marketing Institute. During 1970-71 season, there were 69 gin batteries—24 located at 13 ginning points in the Interior Zone and 45 located at 26 ginning points in the Coastal and Meta Zone. Of these batteries, 55 are Continental, 11 are Lummus, 2 Murray and 1 Hardwick-Etter.

There are a few batteries for which the type of bale press is not reported. Where the type of press is known, 8 out of 66 are High Density and the others are almost evenly divided (30-28) between flat and standard density presses. Table 9 shows the number of stands, saws per stand, and approximate daily ginning capacity based on 23 hour operation.

Table 9.—Number and size of cotton gins in Colombia, 1971

Item	Number of gin batteries		Number of saws	Capacity based on 23 hour operation
	Interior Zone	Coastal and Meta Zone		
2 Stand Gins	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Bales per day</i>
90 saws	0	2	360	120
119 saws	2	10	2,856	2,700
177 saws	1	0	354	120
3 Stand Gins				
119 saws	0	4	1,428	1,500
120 saws	4	8	4,320	1,800
128 saws	2	2	1,536	1,500
4 Stand Gins				
80 saws	3	7	3,200	1,050
88 saws	3	1	1,408	750
90 saws	6	8	5,040	1,750
5 Stand Gins				
90 saws	3	3	2,700	750
Total	24	45	23,202	12,040

If the gins are well located for optimum support of movement of the crop, present ginning capacity could handle an Interior crop of up to about 240,000 bales or a Coastal crop of twice this size in a ginning season of 10 weeks. This would suggest that gins in the Interior Zone might have to operate a bit more than 10 weeks to handle a crop as large as the record crop of 1968-69, but a 10-week period would appear fully adequate in the Coastal-Meta Zone until such time as production expands well beyond the 1969-70 record level.

Domestic marketing and prices

The Distribuidora Nacional de Algodon (DIAGONAL) is the key organization representing domestic cotton mills in dealings with producers and with IDEMA. Prior to the harvest in each zone DIAGONAL finds out the quantity and quality of cotton each mill will need in the 6-month period. This information is relayed to IDEMA which provides the cotton. If, for example, in a given 6-month period the Coastal-Meta Zone should be expected to produce twice the amount requested by the mills, a gin might designate the cotton ginned on Monday, Tuesday, and Wednesday for DIAGONAL and that ginned Thursday, Friday, and Saturday for export. Another gin might decide to rotate on a weekly basis.

The domestic mill industry normally uses only about 2,000 bales of the cotton grown in Valle del Cauca. Thus, practically all of the crop of Acala 1517 BR-2 grown there is sold for export. Most of the other cotton grown in the Interior Zone is taken by DIAGONAL for the domestic mill industry although in some years production exceeds domestic needs and the remainder is exported. The Coastal crop is divided about equally between domestic mill use and exports with the former taking precedence.

DIAGONAL handles the allocation to the mills and it is customary for trucks to load the cotton the day it is ginned for hauling to the mills. DIAGONAL, in close coordination with cotton producer representatives and the government, classifies the cotton sold for domestic use and acts as representative of the cotton textile industry in all matters involving raw cotton, including bargaining with producers over the schedule of prices mills will pay for their cotton. The prices agreed upon and made official by the National Superintendency of Prices of the Ministry of Agriculture are gin point prices and are applicable at all locations.

Table 10 presents data on internal prices that have prevailed from early 1962 to date for the dominant quality of cotton—Strict Low Middling. Since these are prevailing internal prices they are presented in pesos per kilogram of

Table 10.—Internal price of strict low middling cotton in Pesos and U.S. equivalent in Colombia, 1962-71

Crop year ¹	Producing zone	Internal price for strict low middling ²		
		Date first announced	Pesos per kilogram	Cents ³ per pound
1962 . . .	Coastal-Meta	Feb. 22, 1963	5.750	26.1
1963 . . .	Interior	July 25, 1963	6.298	28.6
	Coastal-Meta	July 25, 1963	6.298	28.6
1964 . . .	Interior	July 25, 1963	6.298	28.6
	Coastal-Meta	July 25, 1963	6.298	25.3
1965 . . .	Interior	July 17, 1965	7.242	17.0
	Coastal-Meta	Dec. 13, 1965	8.183	20.3
1966 . . .	Interior	Dec. 13, 1965	8.183	22.8
	Coastal-Meta	Dec. 13, 1965	8.183	22.7
1967 . . .	Interior	Dec. 13, 1965	8.183	22.7
	Coastal-Meta	Dec. 20, 1967	8.674	24.1
1968 . . .	Interior	Dec. 20, 1967	8.674	23.9
	Coastal-Meta	Dec. 20, 1967	8.674	23.2
1969 . . .	Interior	Dec. 20, 1967	8.674	22.3
	Coastal-Meta	Dec. 20, 1967	8.674	21.9
1970 . . .	Interior	May 21, 1970	9.730	23.8
	Coastal-Meta	Dec. 10, 1970	10.410	24.5
1971 . . .	Interior	May 10, 1971	10.810	25.0

¹ Year beginning Aug. 1.

² Most representative grade.

³ Interior prices converted at August exchange rate and Coastal-Meta prices converted at January exchange rate.

lint for each producing zone. The U.S. currency equivalent of these is given on a cents-per-pound basis. It may be noticed that there have been several prolonged periods when maintenance of the peso price at the same level has been associated with a declining level of prices on a cents-per-pound basis, demonstrating a weakening of the peso on international monetary markets.

The representatives of the textile mills, the Cotton Producers Associations and officers of the Ministries of Agriculture and Development have agreed that the cotton support prices will be increased according to the quoted percentage increase in the exchange certificate for 4 consecutive crops, taking into account that Colombia has two crops each year. The increase cannot be more than 8.5 percent per crop. This agreement has created a dynamic mechanism on prices which Colombian leaders believe will probably serve as an incentive for cotton production. It also appears that for the time being both cotton growers and the mills are happy with the agreement.

Table 11 gives annual prices by zones for the various grades of Colombian cotton expressed in U.S. cents per pound. It will be noted that through 1969-70 the range in prices was relatively narrow. For example, in 1969-70 the price of Strict Middling cotton exceeded the price of Good Ordinary by 3.3 cents. This compares with an average spread in the Designated Spot Markets in the United States for 1-1/16 inch cotton of 8.8 cents per pound.

Table 11.—Internal prices for cotton, by zone and grade, in Colombia, 1962-63 - 1971-72¹

Zone and grade	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>	<i>Cents per pound</i>
Interior Zone:										
Good middling	--	31.0	31.0	18.5	24.8	24.7	25.9	24.2	27.0	28.2
Strict middling	--	30.7	30.7	18.3	24.5	24.4	25.6	23.9	26.5	27.8
Middling, bright	--	30.3	30.3	18.0	24.2	24.1	25.3	23.6	26.0	27.3
Middling	--	29.8	29.8	17.7	23.8	23.7	24.8	23.2	25.4	26.6
Strict low middling, bright	--	29.1	29.1	17.3	23.2	23.1	24.3	22.7	25.2	25.7
Strict low middling ² . . .	--	28.6	28.6	17.0	22.8	22.7	23.9	22.3	23.8	25.0
Low middling, bright . .	--	28.3	28.3	16.8	22.6	22.5	23.6	22.0	23.5	24.6
Low middling	--	28.0	28.0	16.7	22.4	22.3	23.4	21.8	23.1	24.1
Strict good ordinary bright	--	27.5	27.5	16.4	21.9	21.8	22.9	21.4	22.3	23.4
Strict good ordinary . . .	--	27.3	27.3	16.2	21.8	21.7	22.8	21.3	21.7	22.8
Good ordinary bright . .	--	27.0	27.0	16.1	21.6	21.5	22.5	21.1	21.0	22.0
Good ordinary	--	26.5	26.5	15.7	21.1	21.1	22.1	20.6	20.3	21.2
Ordinary	--	--	--	--	--	--	--	--	19.6	20.5
Below grade	--	--	--	--	--	--	--	--	18.1	19.0
Coastal-Meta Zone:										
Good middling	28.1	31.0	27.4	22.0	24.7	26.1	25.1	23.7	27.7	--
Strict middling	28.0	30.7	27.2	21.8	24.4	25.9	24.9	23.5	27.2	--
Middling bright	27.8	30.3	26.8	21.5	24.1	25.5	24.5	23.1	26.7	--
Middling	27.6	29.8	26.4	21.1	23.7	25.1	24.1	22.8	26.0	--
Strict low middling, bright	26.6	29.1	25.8	20.7	23.1	24.5	23.6	22.2	25.2	--
Strict low middling ² . .	26.1	28.6	25.3	20.3	22.7	24.1	23.2	21.9	24.5	--
Low middling, bright . .	24.7	28.3	25.0	20.1	22.5	23.8	22.9	21.6	24.1	--
Low middling	24.1	28.0	24.8	19.9	22.3	23.6	22.7	21.4	23.6	--
Strict good ordinary bright	22.8	27.5	24.3	19.5	21.8	23.2	22.2	21.0	22.9	--
Strict good ordinary . . .	22.2	27.3	24.2	19.4	21.7	23.0	22.1	20.9	22.3	--
Good ordinary, bright . .	20.7	27.0	23.9	19.2	21.5	22.8	21.9	20.6	21.5	--
Good ordinary	20.3	26.5	23.4	18.8	21.1	22.3	21.4	20.2	20.8	--
Ordinary	--	--	--	--	--	--	--	--	20.1	--
Below grade	--	--	--	--	--	--	--	--	18.6	--

¹ Very light spotted discounted 1/4 grade, light spotted 1/2 grade and spotted 1 grade.

² Most representative grade.

A major step was taken to correct this imbalance for the 1970-71 crop. The increases in this adjustment scaled from about 17 percent for the higher grades to 3 percent for Good Ordinary cotton; or, in terms, of cents the range between Strict Middling and Good Ordinary White cotton was widened to more than 6 cents. This spread in Colombian internal prices has continued, while in the United States differences have become unusually narrow in recent months.

International Trade

Imports

With the development of its own textile industry before World War I, Colombia began consuming more cotton than it produced. The difference was supplied by imports from the United States and other countries.

Before World War II, the United States was the principal supplier. Peru began to supply some cotton for the market about 1940. From the early 1920's to date, the United States has been Colombia's leading supplier of raw cotton in over half of the years, and Peru was the leading supplier in most other years, followed by Brazil which was the major supplier in 5 years during the World War II period. A number of other countries also have supplied cotton from time to time. Their relative importance was greatest during the decade of the 1940's.

During the period 1951-57 Colombia followed a foreign exchange policy which made it easy for cotton mills to import cotton. Mills were permitted to buy foreign exchange for imports of cotton and textile machinery at the official rate of 2.5 pesos to the dollar. Through 1954, this rate compared with a free rate of 3.0 to 3.5 pesos per dollar. Starting in early 1955 the divergence in rates became more pronounced and by the time of the currency reform in June 1957 the free rate had risen to as much as 6.9 pesos per dollar. This access to an extremely favorable exchange rate gave Colombian manufacturers an unusual advantage compared with manufacturers in the United States and elsewhere when it came to importing textile machinery and raw materials.

Following the currency reform and the sharp increase in the peso price of imported cotton, the Colombian textile industry increased its support of programs designed to expand domestic cotton production and reduce the need for imports.

It is evident that Colombia's cotton imports through the years have been the result of domestic mill requirements beyond the country's domestic cotton production. To a considerable extent, therefore, Colombia imported qualities of cotton that it also produced in substantial volume though not in large enough volume to meet total needs. However, as the mill industry grew and became more diversified, it needed some cotton of a longer staple length than that which was produced domestically. All this cotton was imported until the production of longer staple Upland cotton was started in the Cauca Valley. Currently, the Colombian textile industry utilizes domestically produced cotton almost exclusively, although several thousand bales of long staple cotton are being imported each year for such specialty uses as sewing thread.

Since Colombia is a member of the Latin American Free Trade Association (LAFTA) it appears likely that other LAFTA members will tend to have an advantage over nonmembers in supplying any imported cotton needed by the Colombian textile industry. Cotton imported from member countries is exempt from the import duty of about 1.6 cents per pound plus 20 percent ad valorem. Cotton imported from non-LAFTA countries is subject to these charges.

In most years the only cotton likely to be imported will be specialty cotton needed for thread. Recent experience indicates that Peru will dominate specialty cotton imports. In years when the Colombian crop is considerably shorter than expected and when sizable forward sales have been made as occurred in 1965-66, it may be necessary to import medium staple cotton of the types produced domestically. Under such conditions LAFTA members will be favored unless some nonmember country can offer terms that are sufficiently attractive to offset the advantage of member countries.

Before any cotton can be imported, the authorization of the Ministry of Agriculture must be obtained. It is Government policy to authorize only imports of longer staple cotton that is not grown domestically. In crisis situations such as in 1965-66, the Government allowed imports of medium staple cotton to alleviate a scarcity that developed when too much of the domestic crop was exported. Registration is required prior to all imports of cotton

Table 12.—Cotton imports into Colombia by country of origin, selected averages, annual 1965-70¹

Year ²	United States	Peru	Brazil	Paraguay	Other countries	Total
Average:	<i>Bales</i> ³	<i>Bales</i> ³	<i>Bales</i> ³	<i>Bales</i> ³	<i>Bales</i> ³	<i>Bales</i> ³
1922-24	531	(4)	(4)	(4)	157	688
1925-29	3,003	(4)	(4)	(4)	263	3,266
1930-34	6,224	(4)	(4)	(4)	126	6,350
1935-39	18,359	(4)	311	(4)	135	18,805
1940-44	6,970	17,304	35,808	3,848	9,493	73,423
1945-49	17,410	31,422	19,398	4,522	8,155	80,907
1950-54	31,145	16,061	459	(4)	4,753	52,418
1955-59	34,138	6,473	(4)	(4)	1,861	42,472
1960-64	4,326	3,273	(4)	(4)	89	7,688
Annual:						
1965	57,275	2,780	(4)	(4)	5,236	65,291
1966	1,617	3,389	(4)	(4)	767	5,773
1967	0	2,619	0	0	0	2,619
1968	0	5,051	0	0	0	5,051
1969	0	4,143	0	0	0	4,143
1970	(5)	(5)	(5)	(5)	(5)	⁶ 4,593

¹ Appears to include some cotton waste imported from certain European countries.² Calendar years, 1922-48; year beginning Aug. 1, 1949 to date.³ Bales of 480 pounds net.⁴ If any, included in other countries.⁵ Breakdown not available.⁶ Preliminary.

and the importer must deposit in the Bank of the Republic an amount equal to one percent of the value of the import. This is returned in full after delivery of the cotton. The object of this deposit is to assure use of the import license, as well as to avoid unnecessary imports.

Exports

In 1959, Colombia had an exportable surplus of cotton for the first time in several decades. This was caused by an increase in production from 94,500 bales in 1957 to 219,800 bales in 1958—substantially above mill consumption. Mill consumption in that period increased only moderately, from 170,700 bales to 185,500 bales. In 1959, production reached 255,600 bales, and consumption increased to some 201,300 bales.

Recognizing that internal Colombian prices, as fixed by the government, were somewhat above world levels at exchange rates prevailing at that time, Colombian producers, at their annual meeting in November 1959, voted to assess themselves at a rate equivalent to \$3.60 per bale of cotton produced in the Central Zone and \$1.80 per bale in the Northern Zone. These assessments were withheld when settling with the farmers for their cotton, and the proceeds were to be available to offset losses in exporting cotton at world prices. This program continued for several years.

The first shipments made in January and February 1960 were in exchange for jeeps and other manufactured goods for which Colombia was not granting foreign exchange allocations. In addition to these exports, an agreement with West Germany was signed in March, which involved the exchange of an estimated 20,000 bales of cotton for about \$2.5 million worth of small automobiles to be used as taxis. It is believed that West Germany purchased this cotton at the world price, about 10 cents per pound below Colombia's domestic price. This difference was, to some extent, absorbed by the producer's export subsidy, but it was largely offset by a sizable mark-up on the automobiles which was possible since automobiles could not otherwise be imported. By the end of 1960, exports for the year had reached 117,000 bales and farmers actually received a return for the cotton that was exported that was substantially in line with that for cotton sold to the domestic mill industry. Most of the cotton went to United Kingdom, West Germany, Japan, and other European countries. Japan did not again buy Colombian cotton in volume until 1969-70.

Table 13 shows that the United Kingdom has been the major export market in most years. In fact, in both 1968-69 and 1969-70 Colombia was the major supplier of cotton to the United Kingdom. West Germany has ranked

Table 13.—Exports of cotton from Colombia by country of destination average
1960-64, annual 1965-69

Country	Year beginning Aug. 1					
	Average	1965	1966	1967	1968	1969
	1960-64					
	<i>1,000 bales¹</i>	<i>1,000 bales¹</i>	<i>1,000 bales¹</i>	<i>1,000 bales¹</i>	<i>1,000 bales¹</i>	<i>1,000 bales¹</i>
Belgium	1	3	2	3	4	2
Bulgaria	0	0	0	0	5	6
Canada	4	2	2	2	0	0
Chile	(²)	0	0	1	5	3
Ecuador	3	0	4	4	7	0
France	4	2	9	13	13	13
Germany, West.	21	14	25	50	50	30
Hungary	0	0	0	0	10	1
Ireland	0	0	0	1	2	0
Italy	4	(²)	0	1	1	(²)
Japan	2	0	1	0	3	21
Netherlands	11	6	8	5	23	8
Portugal	0	(²)	4	3	17	7
Spain	0	0	0	(²)	20	3
Switzerland	4	0	1	(²)	2	0
United Kingdom	31	11	27	66	112	97
Venezuela	0	0	0	4	8	1
Other countries	12	4	(²)	1	13	31
Total	97	42	83	154	295	223

¹ Bales of 480 pounds net.

² Less than 500 bales.

second as the largest customer in most years. Colombia also supplies small quantities of cotton to some of the other countries in the LAFTA and Andean groups.

More recently the system of a producer-financed subsidy has been abandoned. Currently each of the producer organizations arranges for the sale of export cotton. In any given year the export cotton may be sold to cotton merchants in Colombia who, in turn, handle its export or, it may be sold by the producer organization directly to a foreign cotton merchant or foreign mill.

In addition to the market price received for exports, cotton exporters and the exporters of other products receive a subsidy in the form of Government tax credit certificates. These are issued to exporters in an amount, in pesos, equal to 15 percent of the foreign exchange surrendered. The certificates are freely negotiable and are received at par value by tax collection offices to apply against income and other tax liabilities. Although the certificates can be held until taxes are due, it is typical for them to be "cashed" at the time they are received, at which time, for example, a certificate with a face value of 150 pesos may have a current value of 130 pesos.

The Textile Industry

The textile industry is Colombia's largest and most important manufacturing industry, and cotton is by far the most important textile. According to a 1970 report, the cotton textile industry accounted for 13 percent of the total value added by all manufacturing and 2.7 percent of the total gross domestic production in Colombia.

Although the first cotton mills were established before World War I, it was not until 1934 that cotton consumption first exceeded 25,000 bales. Mill consumption first exceeded 50,000 bales in 1939, 100,000 bales in 1942, 200,000 bales in 1959, and 300,000 bales in 1965. In the season just ended, consumption is estimated to have totaled about 350,000 bales, a record high.

Table 14.—Name, location, and size of major cotton mills in Colombia as indicated by allocations of cotton in calendar year 1971

Mill	Location	Share of cotton allocation
		<i>Percent</i>
Coltejer	Medellin	42.0
Fabricato	Medellin	28.7
Tejicondor	Medellin	7.3
Unica	Manizales	4.6
Garantia	Cali	3.4
Fatelares	Medellin	2.4
Santexco	Medellin	2.1
Textiles JAAR	Barranquilla	1.8
Fontibon	Bogota	1.4
Marysol	Barranquilla	1.1
Tejidounion	Medellin	.9
Pepalfa	Medellin	.7
Pantex	Medellin	.7
Santa Catalina	Bogota	.5
Filtecar	Barranquilla	.5
Other mills		1.9

Table 15.—Per capita consumption of fibers in Colombia and Latin America, 1969

Item	Colombia		Latin America (Total)	
	<i>Pounds</i>	<i>Percent</i>	<i>Pounds</i>	<i>Percent</i>
Cotton	6.6	69.5	6.4	67.4
Wool	.5	5.2	.7	7.3
Manmade fibers, total .	2.4	25.3	2.4	25.3
Cellulosic	.9	9.5	1.1	11.6
Noncellulosic	1.5	15.8	1.3	13.7
Total fibers	9.5	100.0	9.5	100.0

Compiled from reports of FAO.

Official data are not available on the exact size of the various firms in the cotton textile industry, but indications are that there are about 700,000 spindles and nearly 13,000 looms. The industry employs about 27,500 workers. Table 14 shows the share of the cotton distributed to the mill industry that was allocated to most of the 22 cotton textile firms in the two harvests falling in calendar year 1971. These percentages give a good indication of the relative size of the various firms.

The three largest firms listed in the table are reported to have had about 75 percent of all spindles and 79 percent of all looms in 1969. The industry as a whole is reported to have expanded about 7 percent since 1969.

The Colombian textile industry has grown to where it produces a fairly full range of textiles to meet most of Colombia's needs and also provides a sizable quantity for export. Total textile exports in 1970 reportedly had a value of \$18 million, about one-third larger than in 1969. Because of the overall growth and increased diversification of the industry, Colombia no longer imports cotton textiles. In many countries, where all mills are quite small, it is not feasible for individual mills to offer a very wide range of constructions, colors, and patterns because of the relatively high cost of producing and finishing small lots. In Colombia, the three largest firms are large enough to offer a substantial variety of textiles without incurring disproportionately high costs.

Colombia also has a sizable manmade fiber industry. In 1970 it produced 48.4 million pounds, of which 19.4 million was cellulosic fiber and yarn and 29 million was noncellulosic fiber and yarn. In the aggregate the total production of staple fiber is about 44 percent of total production of all manmade fibers. In addition to viscose and acetate cellulosic manmade fibers, Colombia has three producers of polyester staple and yarn, three producers of nylon 6, and one producer of acrylic fiber. Five of the cotton textile mills are reportedly among the principal stockholders of the largest producers of noncellulosic fiber.

Per capita consumption of textiles in Colombia has shown a long term upward trend but increases have been gradual in recent years. Consumption averaged 9.5 pounds per capita in 1969 which equals the average for all Latin America and compares with averages of 9.0 in 1965-69, 8.9 pounds in 1960-64, and 8.7 pounds in 1955-59. Cotton consumption has fared less well. In 1969 Colombian cotton consumption averaged 6.6 pounds per capita which is above the average for Latin America but below the 1965-69 Colombian average of 6.7 pounds and the 1960-64 average of 7.0 pounds, but above the 1955-59 average of 6.4 pounds. Per capita consumption of manmade fibers averaged 2.4 pounds in Colombia in 1969, the same as for Latin America as a whole. Noncellulosic fibers which in 1969 averaged 1.5 pounds per capita in Colombia compared with 1.3 for all Latin America. These 1969 levels compare with an average of 0.9 pounds in 1965-69, 0.2 pounds in 1960-64, and 0.1 pounds in 1955-59.

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